

## Claims

- [c1] A bioinformatically detectable isolated oligonucleotide which is endogenously processed from a hairpin-shaped precursor, and anneals to a portion of a mRNA transcript of a target gene, wherein binding of said oligonucleotide to said mRNA transcript represses expression of said target gene, and wherein said oligonucleotide has at least 80% sequence identity with a nucleotide sequence selected from the group consisting of SEQ ID NOs: 1-14456.
- [c2] A bioinformatically detectable isolated oligonucleotide having a nucleotide sequence selected from the group consisting of SEQ ID NOs: 1-14456.
- [c3] A bioinformatically detectable first oligonucleotide which is a portion of a mRNA transcript of a target gene, and anneals to a second oligonucleotide that is endogenously processed from a hairpin precursor, wherein binding of said first oligonucleotide to said second oligonucleotide represses expression of said target gene, and wherein nucleotide sequence of said second nucleotide is selected from the group consisting of SEQ ID NOs: 1-14456.

- [c4] A bioinformatically detectable oligonucleotide having a nucleotide sequence selected from the group consisting of SEQ ID NOs: 1-14456.
- [c5] A bioinformatically detectable isolated oligonucleotide which anneals to a portion of a mRNA transcript of a target gene associated with Human immunodeficiency virus 1 (HIV-1) infection, wherein binding of said oligonucleotide to said mRNA transcript represses expression of said target gene, and wherein said oligonucleotide has at least 80% sequence identity with a nucleotide sequence selected from the group consisting of: (a) a sequence selected from the group consisting of SEQ ID NOs: 1, 3, 5 and 63804-66308; and (b) the complement of a sequence selected from the group consisting of SEQ ID NOs: 196685, 197420, 198047 and 194813-200687.
- [c6] A bioinformatically detectable first oligonucleotide which is a portion of a mRNA transcript of a target gene associated with Human immunodeficiency virus 1 (HIV-1), and anneals to a second oligonucleotide that is endogenously processed from a hairpin precursor, wherein binding of said first oligonucleotide to said second oligonucleotide represses expression of said target gene, and wherein nucleotide sequence of said second nucleotide is selected from the group consisting of SEQ ID

NOs: 1, 3, 5 and 63804-66308.

- [c7] A bioinformatically detectable isolated oligonucleotide which anneals to a portion of a mRNA transcript of a target gene associated with Human immunodeficiency virus 2 (HIV-2) infection, wherein binding of said oligonucleotide to said mRNA transcript represses expression of said target gene, and wherein said oligonucleotide has at least 80% sequence identity with a nucleotide sequence selected from the group consisting of: (a) a sequence selected from the group consisting of SEQ ID NOs: 1, 3, 5 and 66309-68740; and (b) the complement of a sequence selected from the group consisting of SEQ ID NOs: 202601, 204421, 205326 and 200688-206410.
- [c8] A bioinformatically detectable first oligonucleotide which is a portion of a mRNA transcript of a target gene associated with Human immunodeficiency virus 2 (HIV-2), and anneals to a second oligonucleotide that is endogenously processed from a hairpin precursor, wherein binding of said first oligonucleotide to said second oligonucleotide represses expression of said target gene, and wherein nucleotide sequence of said second nucleotide is selected from the group consisting of SEQ ID NOs: 1, 3, 5 and 66309-68740.
- [c9] A bioinformatically detectable isolated oligonucleotide

which anneals to a portion of a mRNA transcript of a target gene associated with Human adenovirus A infection, wherein binding of said oligonucleotide to said mRNA transcript represses expression of said target gene, and wherein said oligonucleotide has at least 80% sequence identity with a nucleotide sequence selected from the group consisting of: (a) a sequence selected from the group consisting of SEQ ID NOs: 3 and 18799–20253; and (b) the complement of a sequence selected from the group consisting of SEQ ID NOs: 99724 and 99658–102371.

- [c10] A bioinformatically detectable first oligonucleotide which is a portion of a mRNA transcript of a target gene associated with Human adenovirus A, and anneals to a second oligonucleotide that is endogenously processed from a hairpin precursor, wherein binding of said first oligonucleotide to said second oligonucleotide represses expression of said target gene, and wherein nucleotide sequence of said second nucleotide is selected from the group consisting of SEQ ID NOs: 3 and 18799–20253.
- [c11] A bioinformatically detectable isolated oligonucleotide which anneals to a portion of a mRNA transcript of a target gene associated with Human herpesvirus 1 infection, wherein binding of said oligonucleotide to said mRNA transcript represses expression of said target gene, and

wherein said oligonucleotide has at least 80% sequence identity with a nucleotide sequence selected from the group consisting of: (a) a sequence selected from the group consisting of SEQ ID NOs: 1, 3, 4 and 29296–31435; and (b) the complement of a sequence selected from the group consisting of SEQ ID NOs: 119609, 119788 and 119381–124109.

- [c12] A bioinformatically detectable first oligonucleotide which is a portion of a mRNA transcript of a target gene associated with Human herpesvirus 1, and anneals to a second oligonucleotide that is endogenously processed from a hairpin precursor, wherein binding of said first oligonucleotide to said second oligonucleotide represses expression of said target gene, and wherein nucleotide sequence of said second nucleotide is selected from the group consisting of SEQ ID NOs: 1, 3, 4 and 29296–31435.
- [c13] A bioinformatically detectable isolated oligonucleotide which anneals to a portion of a mRNA transcript of a target gene associated with Human herpesvirus 4 (Epstein–Barr virus) infection, wherein binding of said oligonucleotide to said mRNA transcript represses expression of said target gene, and wherein said oligonucleotide has at least 80% sequence identity with a nucleotide sequence selected from the group consisting of:

(a) a sequence selected from the group consisting of SEQ ID NOS: 1, 3, 4 and 36686–40656; and (b) the complement of a sequence selected from the group consisting of SEQ ID NOS: 134996, 135760 and 134776–142920.

- [c14] A bioinformatically detectable first oligonucleotide which is a portion of a mRNA transcript of a target gene associated with Human herpesvirus 4 (Epstein–Barr virus), and anneals to a second oligonucleotide that is endogenously processed from a hairpin precursor, wherein binding of said first oligonucleotide to said second oligonucleotide represses expression of said target gene, and wherein nucleotide sequence of said second nucleotide is selected from the group consisting of SEQ ID NOS: 1, 3, 4 and 36686–40656.
- [c15] A method for bioinformatic detection of microRNA oligonucleotides, the method comprising: bioinformatically detecting a hairpin shaped precursor oligonucleotide; bioinformatically detecting an oligonucleotide which is endogenously processed from said hairpin shaped precursor oligonucleotide; and bioinformatically detecting a target gene of said oligonucleotide wherein said oligonucleotide anneals to at least one portion of a mRNA transcript of said target gene, and wherein said binding represses expression of said target gene, and said target gene is associated with a disease.

